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THE PLANT DISEASE REPORTER

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THE PLANT DISEASE SURVEY

DIVISION OF MYCOLOGY AND DISEASE SURVEY

Vol. XXI Number 20

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A COLLECTION OF FUNGI FROM DECAYING TREES OR PLANTS IN HONDURAS, CENTRAL AMERICA

Otto A. Reinking and C. J. Humphrey

A miscellaneous collection of fungi developing on decaying parts of trees or other plants was made by the senior author during the years 1922-1923 in the vicinity of Tela, Honduras. These are listed herein, with the host as far as known, and the locality and date of collection. Portions of the collection were sent to C. G. Lloyd of Cincinnati, Ohio, for identification and a few to Dr. N. Patouillard of Neuilly sur Seine, France. With few exceptions the remainder of the collection is in the herbarium of the associate author, who has checked the wood-destroying species of basidiomycetes as far as possible with authentic material. Since a number of Lloyd's determinations have been changed to conform to more accepted usage these changes have been indicated and a few comments added. The temporary collection numbers are those of the senior author. Only the original describer has been credited with the species but where transfer has been made to another genus this author's name has been placed in parenthesis.

AGARICACEAE

Lentinus strigosus (Schw.) On dead tree, La Fragua, Tela, Honduras, Apr. 8, 1923 (O. A. Reinking 135 H).

Lentinus velutinus Fr. On dead tree trunk, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 81 H, 149 H).

Lentinus villosus Kl. On dead wood, Truxillo, Honduras, Feb. 24, 1923 (O. A. Reinking 72 H); on dead tree trunk, Uluasito, Tela, Honduras, Mar. 13, 1923 (83 H); on dead branches, Dakota, Tela, Honduras, Aug. 1923 (100 H).

Marasmius (Androsaceus) haematocephala Mont. On dead wood, Dakota, Tela, Honduras, Mar. 13, 1923 (O. A. Reinking 217 H).

Panus eugrammus Mont. On dead tree trunk, La Fragua, Tela, Honduras, Apr. 7, 1923 (O. A. Reinking 108 H). Det. Humphrey.

Schizophyllum commune Fr. On dead palm tree, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 162 H).

CLAVARIACEAE

Lachnocladium compressum Berk. On decayed wood, Dakota, Tela, Honduras, Aug. 1923 (O. A. Reinking 78 H). Det. Humphrey.

Pterula capillaris Lév. On dead part of wild sugar cane, Dakota, Tela, Honduras, Feb. 17, 1923 (O. A. Reinking 240 H).

POLYPORACEAE

Favolus lutescens Lloyd On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 163 H). This is the type collection.

Fomes fasciatus (Sw.) On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 168 H). = Fomes marmoratus Berk.

Fomes fastuosus (Lév.) On dead tree trunk, La Fragua, Tela, Honduras, Apr. 14, 1923 (O. A. Reinking 140 H).

Fomes hornoderrnus (Mont.) On dead tree trunk, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 171 H). Det. Humphrey.

Fomes lividus Kalchbr.? On fence post, Dakota, Tela, Honduras, Aug. 1923 (O. A. Reinking 96 H); on dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (169 H). This is one of the species that Lloyd referred to Fomes cinereus, which was never published.

Fomes tropicalis Ske. On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 151 H).

Ganoderma laccatum (Pers.) var. dorsale Lloyd On dead tree trunk, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 82 H). Lloyd determined as Polyporus dorsalis Lloyd.

Ganoderma sessile Murr. On dead branches, Dakota, Tela, Honduras, Aug. 1923 (O. A. Reinking 99 H). Lloyd determined this as Polyporus lucidus.

Ganoderma zonatum Murr. On dead palm trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (O. A. Reinking 101 H). Lloyd determined as Polyporus curtisii Berk.

Lenzites saepiformis Lloyd On wooden truss, Dakota, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 82 H bis); on dead tree trunk, Dakota, Tela, Honduras, Aug. 1923 (38 H); on dead branches, Dakota, Tela, Honduras, Aug. 1923 (104 H). This species is not specifically distinct from Lenzites sepiaria (Wulf.).

Lenzites sepiaria (Wulf.) On coniferous water tank timber, Tela, Honduras, Feb. 1924 (Herb. Humphrey 11709). This is a younger, brighter colored specimen than those determined by Lloyd as L. saepiformis, but certainly co-specific.

Lenzites striata (Sw.) On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 152 H); on dead wood, Tela Honduras. Mar. 20, 1923 (160 H).

Polyporus blanchetianus Mont. On dead tree tunk, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 76 H).

Polyporus byrsinus Mont. On dead bamboo culm, Tela, Honduras, Mar. 12, 1923 (O. A. Reinking 227 H) Det. Patouillard.

Polyporus gilvus (Schw.) On dead tree trunk, Tela, Honduras, Mar. 1923 (O. A. Reinking 504 H).

Polyporus licnoides Mont. On dead wood, Dakota, Tela, Honduras, Mar, 20, 1923 (O. A. Reinking 148 H).

Polyporus sanguineus (L.) On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 165 H).

Polyporus tricholoma Mont. On dead tree trunk, Ulwasito, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 80 H); on dead bamboo culm, Tela, Honduras, Mar. 13, 1923 (228 H) Det. Patouillard; on dead tree trunk, Tela, Honduras, Feb. 1924 (Herb. Humphrey 11714).

Polystictus fricsii Kl. On dead branches, Truxillo, Honduras, Feb. 24, 1923 (O. A. Reinking 74 H); on dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (158 H).

Polystictus occidentalis (Kl.) On dead tree trunk, La Fragua, Tela, Honduras, Mar. 18, 1923 (O. A. Reinking 134 H); on dead trunk Castilloa elastica, Tela, Honduras, Feb. 1924 (Herb. Humphrey 11706), Mar. 1924 (Herb. Humphrey 11720); on dead wood, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 153 H).

Trametes corrugata (Pers.) On dead trunk Castilloa elastica, Tela, Honduras, Feb. 1924 (Herb. Humphrey 11717).

Trametes cubensis (Mont.) On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 170 H).

Trametes hydnoides (Sw.) On dead tree, La Fragua, Tela, Honduras, Jan. 17, 1923 (O. A. Reinking 137 H); on dead wood, Tela, Honduras, Feb. 20, 1923 (159 H); on dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (172 H) Determined by Lloyd as Trametes fibrillosus; on dead trunk Castilloa elastica, Tela, Honduras, Feb. 1924 (Herb. Humphrey 11708).

Trametes rigida Berk. & Mont. On dead tree trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (O. A. Reinking 229 H). Det. Humphrey.

THELEPHORACEAE

Stereum membranaceum Fr. On dead tree trunk, back of El Eden, Mazapa River, Tela, Honduras, Apr. 5, 1923 (O. A. Reinking 89 H); on dead tree trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (111 H); on dead leaf of palm, Tela, Honduras, Apr. 1923.

Stereum miquelianum Mont. On dead tree trunk, Dakota, Tela, Honduras, Aug. 1923 (O. A. Reinking 177 H).

HETEROBASIDIEAE

Auricularia auricula (L.) On dead tree trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (O. A. Reinking 146 H).

Auricularia brasiliensis Fr. On dead tree trunk, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 84 H); on dead trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (126 H).

Auricularia delicata Fr. On dead tree trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (O. A. Reinking 107 H).

Auricularia mesenterica Fr. On dead tree trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (O. A. Reinking 132 H); on dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (156 H).

Auricularia moellerii Lloyd On dead tree trunk, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 75 H); on dead tree trunk, Farm 3, Progreso, Honduras, Feb. 9, 1923 (90 H). Lloyd considers this species a form of Auricularia auricul , approaching Auricularia delicata.

Auricularia polytricha (Mont.) On dead branch, La Fragua, Tela, Honduras, Apr. 9, 1923 (O. A. Reinking 118 H, 139 H); on dead tree, La Fragua, Tela, Honduras, Jan. 17, 1923 (136 H); on wounded part of living Citrus (grapefruit), Cuyamelito, Amoa, Honduras, Aug. 1923 (173 H); on dead trunk Castilloa elastica, Tela, Honduras, Feb. 1924 (Herb. Humphrey 11707).

Guepinia spathularia (Schw.) On dead branches, La Fragua, Tela, Honduras, Apr. 8, 1923 (O. A. Reinking 123 H).

GASTEROMYCETEAE

Geaster reinkingii Lloyd On a dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 154 H).

Geaster saccatus Fr. On dead trash on ground, La Union, Tela, Honduras, Dec. 26, 1922 (O. A. Reinking 94 H).

Geaster subiculosus Cke. On dead tree trunk, Dakota, Tela, Honduras, Aug. 1923 (O. A. Reinking 79 H).

ASCOMYCETEAE

Camillea bacillum Mont. On dead wood, Guaymas, Tela, Honduras, Mar. 17, 1923 (O. A. Reinking 70 H).

Camillea bomba Mont. On dead tree trunk, La Fragua, Tela, Honduras, Apr. 8, 1923 (O. A. Reinking 109 H).

Camillea poculiformis Lév. On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 164 H); on dead tree trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (127 H).

Camillea sagraena Mont. On dead tree trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (O. A. Reinking 126 H), Mar. 20, 1923 (85 H, 86 H).

Cookeina sulcipes (Berk.) Kuntze On dead branches, Hicaque, Tela, Honduras, Dec. 21, 1922 (O. A. Reinking 95 H); on dead trunk, La Union, Tela, Honduras, Dec. 28, 1922 (106 H); on dead branches, Dakota, Tela, Honduras, Aug. 1923 (105 H), Mar. 20, 1923, (155 H). Determined by Lloyd as Trichoscypha hindsii Kuntze, which according to Seaver, N. A. Cup Fungi, is considered a synonym of C. sulcipes.

Daldinia concentrica (Bolt.) On dead tree trunk, La Fragua, Tela, Honduras, Jan. 17, 1923 (O. A. Reinking 147 H).

Daldinia vernicosa Schw. On dead tree trunk, La Fragua, Tela, Honduras, Apr. 9, 1923 (O. A. Reinking 117 H).

Hypoxylon haematostroma Mont. On dead branches, La Fragua, Tela, Honduras, Apr. 8, 1923 (116 H), Apr. 9, 1923 (110 H).

Xylaria bambocensis Lloyd On dead bamboo culm, La Fragua, Tela, Honduras, Apr. 8, 1923 (O. A. Reinking 239 H).

Xylaria cubensis Mont. On dead tree trunk, La Fragua, Tela, Honduras, Apr. 8, 1923 (O. A. Reinking 138 H), Apr. 9, 1923 (114 H).

Xylaria guyanensis Mont. On dead tree trunk, La Fragua, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 91 H).

Xylaria herculea Mig. On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 150 H); on dead tree trunk, La Fragua, Tela, Honduras, Apr. 8, 1923 (122 H).

Xylaria hypoxylon (L.) On dead tree trunk, Dakota, Tela, Honduras, Aug. 1923 (O. A. Reinking 178 H).

MYXOMYCETES

Hemitrichia serpula (Scop.) Rost. (Hemiarcyria serpula (Scop.) Rost.) On dead tree trunk, Dakota, Tela, Honduras, Mar. 20, 1923 (O. A. Reinking 161 H). (New York (Geneva) Agricultural Experiment Station and U. S. Department of Agriculture Soil Conservation Service).

SOME FUNGI FOUND DECAYING RAILWAY TIES OF NATIVE WOODS IN HONDURAS

Otto A. Reinking and C. J. Humphrey

Ties used in the construction of railways in banana plantations in the tropics were in former years primarily cut from a variety of native broadleaf trees found in the jungles that were being cleared for planting. The life of such ties was very short, thereby greatly increasing the cost of maintenance on more or less permanent railway lines. For this reason the various companies operating railroads found it more economical to purchase treated ties from the United States.

Some of the fungi that are instrumental in the decay of railway ties in Honduras are listed below. The collections were made by the senior author during the years 1922 and 1934 in the vicinity of Tela, Honduras. The majority of the determinations were made by C. G. Lloyd of Cincinnati, Ohio, but have been revised by the associate author, in whose herbarium portions of most of the collections are deposited.

All of these fungi are widely distributed in the western tropics; a considerable number also occur in the eastern tropics. Most of them extend northward into southern United States.

AGARICACEAE

Lentinus villosus (L.) On railroad tie, Tela, Honduras, Dec. 8, 1922 (O. A. Reinking 61 H).

HYDNACEAE

Hydnum pulcherrimum B. & C. On railroad tie, Matarras spur, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 38 H).

POLYPORACEAE

Fomes fasciatus (Sw.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 47 H, 48 H).

Fomes geotropus Cke. On railroad tie, Matarras spur, Tela, Honduras, Mar. 17, 1923 (O. A. Reinking 46 H).

Fomes lignosus (Kl.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 20 H).

Fomes sagraenus (Mont.) On railroad tie, Dakota, Tela, Honduras, May 7, 1923 (O. A. Reinking 68 H). Lloyd determined as Trametes feei Fr.

Lenzites striata (Sw.) On railroad tie, Matarras spur, Tela, Honduras, Dec. 8, 1922 (O. A. Reinking 10 H), Mar. 16, 1923 (12 H); on railroad tie, Dakota, Tela, Honduras, Aug. 1923 (31 H).

Polyporus adustus (Willd.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 24 H, 28 H).

Polyporus concrescens Mont. On railroad tie, Matarras spur, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 57 H). Lloyd considers this a synonym of Polyporus zonalis Berk. = Polyporus surinamensis Miq.

Polyporus gilvus (Schw.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 5, 1923 (O. A. Reinking 7 H), Mar. 15, 1923 (34 H).

Polyporus licnoides Mont. On railroad tie, Matarras spur, Tela, Honduras, Dec. 8, 1922 (O. A. Reinking 50 H), Mar. 15, 1923 (36 H), Mar. 16, 1923 (19 H); on railroad tie, Dakota, Tela, Honduras, Jan, 4, 1923 (29 H).

Polyporus sanguineus (L.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 17, 1923 (O. A. Reinking 56 H).

Polyporus supinus (Sw.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 16, 1923 (O. A. Reinking 14 H).

Polyporus surinamensis Miq. On railroad tie, Matarras spur, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 26 H, 27 H), Mar. 16, 1923 (63 H); Mar. 15, 1923 (42 H, 59 H), Mar. 16, 1923 (41 H, 52 H). The first three were determined by Lloyd as Polyporus rigidus Lév. The remainder determined by Humphrey.

Polystictus friesii Kl. On railroad tie, Matarras spur, Tela, Honduras, Dec. 8, 1922 (O. A. Reinking 8 H), Mar. 15, 1923 (37 H), Mar. 16, 1923 (44 H).

Polystictus lenis (Lév.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 17, 1923 (O. A. Reinking 4 H). Not specifically distinct from P. occidentalis (Kl.).

Polystictus membranaceus (Sw.) On railroad tie, Matarras spur, Tela, Honduras, Dec. 8, 1922 (O. A. Reinking 2 H, 3 H) Determined by Lloyd as Polystictus schizodon (Lév.); Mar. 16, 1923 (18 H) Determined by Lloyd as Polystictus elongatus Berk.

Trametes cubensis (Mont.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 16, 1923 (O. A. Reinking 60 H).

Trametes hydnoides (Sw.) On railroad tie, Matarras spur, Tela, Honduras, Mar. 16, 1923 (O. A. Reinking 15 H, 16 H). The former was determined by Lloyd as Trametes ocellata Berk. & Curt. but that species is not specifically distinct from Trametes hydnoides.

HETEROBASIDIEAE

Auricularia brasiliensis Fr. On railroad tie, Matarras spur, Tela, Honduras, Mar. 15, 1923 (O. A. Reinking 43 H), Mar. 16, 1923 (64 H).

Auricularia delicata Fr. On railroad tie, Matarras spur, Tela, Honduras, Dec. 8, 1922. (O. A. Reinking 49 H), Mar. 16, 1923 67 H).

Guepinia spathularia (Schw.) On railroad tie, Matarras spur, Tela, Honduras, Dec. 8, 1922 (O. A. Reinking 53 H); on railroad tie, Dakota, Tela, Honduras, Aug. 1923 (51 H). (New York (Geneva) Agricultural Experiment Station and U. S. Department of Agriculture Soil Conservation Service).

RED LEAF AND BLAST OF OATS

M. F. Barrus

For many years a reddish color of oat leaves during the growth period has been observed in New York State fields. This condition has usually been ascribed to wet soil or some other unfavorable condition for growth. During 1937, this reddening of the foliage has been conspicuous in the many fields that have been examined and was observed even before the plants began to stool. It was not confined to wet spots in the field and to dead furrows but was scattered throughout the field as individual plants or small areas a foot or two in length along a drill row in which every plant was affected. Nearly all fields showed some affected plants regardless of the variety planted and, in many fields, one-half or more of the plants had these colored leaves. In mixed plantings of oats and barley, the barley was unaffected, even when growing next to an affected oat plant.

Where the condition occurred in spots, it was noticed that the plants with colored leaves were shorter than the others and that the proportion of blasted spikelets to sound ones in the heads was greater than in plants havin

green leaves. Later observation showed that this was as true for red-leaved plants occurring singly as for those in groups. Plants thus affected and adjoining plants normal in this respect were collected from time to time as the season advanced from several fields in different counties of the State.

The reddish color was observed most commonly on the lowest leaves that were alive. Sometimes it involved the entire leaf although more commonly it was more or less confined to the apical half. In some cases only one leaf was affected and in other cases two or three leaves showed the coloration. The youngest leaves, however, were not thus discolored. The color varied somewhat from a rose red to a violet red and, on drying, some had turned to purple. As the leaves died from maturity, the red color disappeared, but was often retained in the specimens collected earlier. No definite spots, aside from those caused by leaf rust, were observed on these leaves nor did the roots or basal portion of the culms show any evidence of infection by pathogens. Most of the observations were made just as the heads were appearing or before the kernels had passed the milk stage. The culms, leaves, and spikelets of healthy plants had their normal green color for these stages of growth. The heads and basal portion of the culms of affected plants had a yellower color at these stages than had healthy plants.

Measurements were later made of the length of the affected and healthy plants that had been collected from the various fields and counts of blasted and sound spikelets were made of each. These are as follows:

Collection no.	Date	Stage in development	Red-leaf					Healthy				
			No. plants examined	Average height inches	Spikelets Average number			No. plants examined	Average height inches	Spikelets Average number		
					Sound	Blasted	Total			Sound	Blasted	Total
	July											
1	16	Flower	12	29.92	23.1	22.4	45.5	7	37.4	45.7	3.9	49.7
2	17	Flower	10	a	13.3	13.8	27.1	9	a	30.9	10.2	41.1
3	22	Milk	14	40.90	40.4	15.5	55.9	5	47.9	47.6	4.4	52.0
4	28	Milk	11	45.10	44.1	17.1	61.2	11	47.7	45.5	10.8	56.3
5	28	Flower	19	25.84	14.2	15.3	29.5	14	30.3	20.3	7.6	27.9
6	29	Milk	20	32.71	27.7	37.9	65.6	8	34.5	26.6	13.4	40.0
	Aug.											
7	1	Dough	100	a	16.6	7.3	24.0	100	a	29.0	3.9	33.0
Weighted average			186	33.72[b]	21.3	13.9	35.2	154	38.36[c]	30.7	5.6	36.4

a. No data.
b. Average for 76 plants.
c. Average for 45 plants.

Included among the plants classified as "healthy" were some individuals that were as short as those considered as affected with red leaf or even shorter. Also included among them were plants with heads containing a larger proportion of blasted spikelets than was found in some red-leaf plants in the same collection. Nevertheless, these data show that the average height of healthy plants in each collection is greater than that of affected plants and that the number of blasted spikelets is considerably less. The total number of sound and blasted spikelets varied greatly in the different heads, both among those plants affected with red leaf and those that were free from it.

On August 13, a trip was made to points near Ithaca to obtain additional specimens of oats affected with red leaf. Most fields of oats were mature and some were being harvested but no affected plants could be identified with certainty at that stage of development. Two late-sown fields with kernels in the milk stage also showed no red-leaf plants. Of 19 plants selected at random from one of these fields, there was an average of 30.5 sound and 7.1 blasted spikelets per head. No red leaf could be found on any plant in another field which had been sown very late as a cover crop and was then in the boot to flower stage. Of 21 plants collected from this field, there was an average of 28.6 sound and 7.0 blasted spikelets per head.

Excessively rainy weather during April and May was responsible for many late-sown fields. Even in June there was an excess of 1.55 inches in precipitation for the State. The mean temperature for April was slightly less than normal but for May and June it was somewhat warmer than normal. There is the possibility that the disease is due to a deficiency in certain mineral elements resulting from the high precipitation during the spring months. It can not be concluded, however, that the weather, directly or indirectly, was responsible for the development of red-leaf symptoms in the oat plants. Rademacher [1] in an experiment with two varieties of oats found a much larger percentage of plants affected with leaf reddening where the plants were 18 cm. apart than when they were 3 cm. apart and suggests that it is connected with a disturbance of the water relationship. He also noticed a correlation of leaf reddening with an increase in the proportion of blasted spikelets. Sprague [2] finds Fusarium culmorum associated with red leaf in Oregon, especially on poorly drained soils. He also found Pseudodiscosia avenae as a cause of leaf lesions of a leathery reddish aspect. It seems probable that the red-leaf symptom, as an expression of a disturbance, can be due to more than one factor or a combination of two or more of them. The general prevalence of these symptoms in New York State this year seems to indicate that all cases are due to the same factor or the same combination of factors. (New York State College of Agriculture).

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[1] Rademacher, B. Die Weissährigkeit des Hafers, ihre verschiedenen Ursachen und Formen. Arch. Pflanzenbau (Wiss. Arch. Landw. Abt. A) 8:456-526. 1932 (page 510).

[2] Sprague, Roderick. Leaf reddening in winter oats in western Oregon. Plant Dis. Reptr. 20:114-115. 1936.

DISEASE LOSSES IN VEGETABLE CROPS IN MASSACHUSETTS

O. C. Boyd

CUCURBITS: Losses from scab (Cladosporium cucumerinum) of cucumbers, melons, and summer squash were about normal. Likewise, leaf blight (Alternaria cucumerina) of muskmelons and anthracnose (Colletotrichum lagenarium) of cucumbers and melons were not more serious than in the average season. Downy mildew (Pseudoperonospora cubensis) appeared on cucumbers in the southeastern part of the State around the middle of August and finished off the vines by the first of September wherever adequate protection was not afforded. The disease did not become epidemic on muskmelons in the same area until the first week of September. Losses were negligible to early plantings of cucumbers, but normally heavy in late cucumbers and in melon fields generally.

Both Septoria leaf spot (S. cucurbitacearum) and bacterial leaf spot (Bacterium cucurbitae) were decidedly pronounced on squash and pumpkins this summer, and the former disease equally severe on summer squash. The fungus (Mycosphaerella citrullina) that causes the black-rot decay of stored squash appeared to be no more prevalent than usual on the leaves, runners, and fruit stalks of Blue Hubbard and other winter squash varieties at harvest time, but it was noticeable as early as late June and early July on the foliage and on the stems in particular of summer squash. It appeared also to be responsible for an unusual amount of lower stem and root decay still earlier in the season not only in summer squash but in muskmelons as well. Apparently the abnormally wet weather of June was a contributing factor in the unusual behavior of this disease.

Bacterial wilt (Bacillus tracheiphilus) caused the usual heavy losses in all cucurbits where rigid precautions were not observed to control the striped cucumber beetle. Many growers continued to use, or adopted this year the use of rotenone for this insect, and practically all reported good control of the pest and of wilt early in the season while the plants were small. After the crops outgrew the feasibility of using hand machines, however, the disease caused heavy losses particularly in cucumbers and winter squash.

A so-called "vine-rot" disease caused heavy losses in certain fields of winter squash. It seemed to arise from the soil, and attacked not only the root and stem but also the runners at any point where they became rooted to the soil. The disease caused severe death of vines in some fields during August. Although the cause of the injury was not definitely determined, it is presumed that one or more species of Fusarium commonly found associated with it might be the cause.

Mosaic (virus) was decidedly more noticeable in summer and winter squash crops than in most past seasons. The reason for this situation is not known. Both aphids and striped cucumber beetles were present but seemingly no more abundant than usual. Since the heaviest infections observed

always were in transplanted summer-squash crops, it is probable that primary infections most likely occurred on the potted plants. Secondary spread in the fields, both in summer squash and in winter squash crops, was extensive in many farms wherever there were a few scattered early-infected plants. Apparently, certain conditions existed that favored more than usual the secondary spread of the disease. The disease appeared about normal in cucumbers and muskmelons.

CELERY: Early blight and late blight (Cercospora apii and Septoria spp.) caused considerably more loss to both early and late plantings than in the average season. Both diseases secured an unusually vigorous and early start in the bed and the field, and growers generally appeared to observe no more than the usual precautions in protecting the crop. Infections on many farms, particularly of early blight, were uncommonly pronounced on the older leaves when fields were set, so that control efforts were an uphill job during the remainder of the season.

As usual, in many instances the severity of early blight and the difficulty in its control appeared to be associated with, first a low-vigor condition of the crop, and secondly the ease with which air currents could sweep spores low across the field. On the other hand, the occurrence of heavy infections of late blight was more readily associated with lack of seed treatment and with overhead irrigation.

The outcome of faulty spraying, of course, is particularly evident during seasons when diseases tend to thrive. Poorly timed sprays, little attention to intervals between applications, skimping on materials, inadequate pump pressures, and dusting at unfavorable times were all observed as faulty factors in celery spraying this year. In one particular extensive crop, which appeared to be high in vigor but which brought a pronounced infection of early blight from the plant bed to the field, there occurred a severe loss from that disease later in the season despite the fact that the grower sprayed every week, using over 300 pounds pressure and plenty of material. However, the plants were thick in the row and heavily foliaged, and he was not covering the heart-leaves of the plants at any application because of faulty nozzle arrangement. It appears that the vegetable growers generally need more schooling in the subjects of timely and thorough spraying to prevent disease, just as the fruit growers have had.

Celery yellows (Fusarium apii) was more noticeable this year than usual. However, it was not the unusual rainfall of May and June that encouraged its development. This disease of celery, like fusarium wilts of other crops including tomato, potato, melons, cabbage, requires rather high soil temperatures for its development. The mean temperatures for June, July, and August were higher this year than normal, i.e., plus 1.5°, plus 1.0°, and plus 4.9° F. respectively, for those months at Amherst. Ordinarily, fusarium wilt or yellows of celery is of no consequence at all in this State, and we do not expect appreciable losses from it when soil temperatures are normal or below normal.

Boron deficiency, or cracked-stem, was not so pronounced this year in celery as in 1936, when severe injury occurred on certain farms in Middlesex County. An extensive field test on the farm of Gardner Lawrence, Concord, demonstrated conclusively the value of an application of borax to soil which produced a severely cracked-stem crop of celery the preceding year. Not only borax but other minor elements, as well as lime and extra doses of phosphate and potash were added to separate plots all of which received a ton of complete fertilizer at the beginning of the season. Other vegetables including beets, carrots, beans, spinach, turnips, and cauliflower were planted along with celery on each plot. Two check plots received no treatment in addition to the complete fertilizer. The test was under the direct supervision of county agent John Handy, extension agronomist R. W. Donaldson, and Mr. Lawrence.

Evidence of borax deficiency was most pronounced in the celery and rutabaga crops. Cracked-stem of celery and dark-center of rutabaga were present in all plots of those crops except the areas treated with borax; and cracked stem was most pronounced in the limed plot, and dark-center in the two check plots. Excess liming of the soil is known to bring on cracked stem of celery.

In addition to learning that these diseases may be prevented by an initial application of boron to the soil, it was also demonstrated that a side-dressing of borax on one of the rows of a check plot of celery, after the symptoms of boron deficiency were very pronounced and as late as September 2, caused a rapid and practically complete recovery from the abnormal condition. In fact, Mr. Lawrence and Mr. Handy observed signs of recovery in yellow celery within 10 to 14 days after the borax was applied and scratched into the soil. And on October 14, nothing remained as evidence of the formerly heavily diseased plants except the stunted, twisted, cracked outermost leaves. Otherwise, the plants appeared normal and compared favorably with the plants on the plot that received borax at the outset of the test.

Mr. Lawrence expressed his intention to treat the entire field with borax next year before setting out celery. And he also realizes that if the disease should appear in a field, he will be able to correct the condition with a side-dressing of borax.

TOMATOES: The tomato disease situation this year was not far from normal. In spite of the frequent rains during May and June, early blight (Alternaria solani) and Septoria leaf spot (S. lycopersici) were only slightly more prevalent during June and July than usual. Both diseases increased rapidly in many plantings during August on unsprayed or poorly protected crops. However, it is believed that heavy dews and fogs that kept the plants soaked overnight and during the early forenoon were mostly responsible for their increases.

Late blight (Phytophthora infestans) was not observed this summer, even in the late-planted, untrellised fields. Where fields were carefully dusted or sprayed during August as a safeguard against late blight, good control of early blight and leaf-spot was obtained in all instances encountered. The failure to cover the undersides of the leaves during the weekly applications of Bordeaux mixture was responsible for a severe infection of early blight with premature defoliation, in one extensive planting of trellised tomatoes.

Leaf-mold (Cladosporium fulvum), though generally considered a greenhouse crop disease, caused severe injury to many fields of trellised tomatoes in the eastern and southeastern parts of the State, seemingly more damage than in most past seasons. Its development was most pronounced during August, but in no instances were there heavy losses in well sprayed fields.

Bacterial canker (Aplanobacter michiganense) of tomatoes was observed only twice during the season, in a commercial planting in Plymouth County and in a home garden in Hampshire County. The commercial grower had been maintaining his own seed stock of that particular variety of tomato, and no doubt thereby introduced the disease into his field.

Fusarium wilt (F. bulbigenum lycopersici) and verticillium wilt (V. albo-atrum) were about normal in garden and field tomatoes this year, only small losses resulting generally from either disease.

Fruit-speck, a trouble consisting of numerous very small black specks mostly on the stem-end half of the tomato, and later enlarging slightly and cracking open, caused no small amount of concern in both trellised and unstaked tomatoes this year. Such spots served as entrance points for secondary decay fungi which formed sizable spots by the time the fruits reached picking stage. The injury appeared to be more common on sprayed than on unsprayed tomatoes. As no organisms could be found associated with the early stage of the injury, the latter was considered to be of non-parasitic origin.

CABBAGE AND CAULIFLOWER: Downy mildew (Peronospora brassicae) of cabbage, which usually is a late-season disease in this State, was more damaging this year to the early crop. In fact, it was present generally in Bristol County on the lower leaves by the middle of June, and was damaging the upper leaves and heads two to three weeks later. It was not so conspicuous as in some seasons past on fall crops. Apparently this disease, like downy mildews of onion and potato, was encouraged by the wet weather of May and June.

Club-root (Plasmodiophora brassicae), on the whole, was earlier and more damaging than in most years, while black-rot and black-leg (Bacterium campestre and Phoma lingam) caused about the usual amount of damage wherever

seed treatment and crop rotation were not observed. In some parts of the State, in Plymouth County for example where a great deal of cauliflower is grown, black rot and black leg were practically absent this year. In the upper section of the Connecticut River Valley, on the other hand, where rainfall was more plentiful during August, black rot caused losses up to 80 percent of the crops. In the Springfield area there was very slight loss from the same disease. In all cases of heavy infections, seed treatment, or seed treatment and crop rotation, was not observed.

Fusarium yellows or wilt (F. conglutinans) of cabbage was not observed anywhere in the State. However, it is present in New York State and in Connecticut, and may be expected to appear any time.

Alternaria leaf-spot (A. brassicae) of cabbage and cauliflower was only slightly damaging as usual, but the bacterial leaf-spot (Bacterium maculicola), which also is seed-borne, was unusually conspicuous in many cauliflower fields, particularly in the Connecticut Valley.

Seed treatment of cabbage and cauliflower, while practiced by some growers and seed dealers, is far from as common and extensive an operation on the farm as it should be. There are four injurious diseases of these crops that are carried on the seed and that may be eliminated from the seed by the same disinfection.

BEANS: Bacterial blight was the outstanding trouble in both beans and limas this year, and a greater part of the damage was caused by the so-called "halo-blight" (Bacterium medicaginis phaseolicola) disease rather than the more common and familiar form of bacterial blight (B. phaseoli). Halo blight was decidedly more injurious to gardens and fields than in the average year, and it developed earlier in the year, as usual, than the common, warmer-weather blight. The frequent rains during the latter half of May and during June no doubt greatly favored its spread in the plantings.

Anthracnose (Colletotrichum lindemuthianum) and mosaic (virus) caused no more than the usual amounts of loss in the beans. They were apparently totally absent in many gardens and fields, and conspicuously injurious in only a few. Crop rotation and sanitation still are the only control practices the growers can depend upon for bean diseases, and these are of little importance when moderately or heavily diseased seed is planted. Yet, there appears to be nothing the home gardener and the commercial grower can do about the diseased-seed situation so long as they have no control over the source of bean seed or its manner of production. Since it is not practicable to eliminate those three important seed-borne diseases by disinfection, it should behoove every seed-growing and distributing organization to sell no bean seed that has not been certified by State officials to be free from anthracnose, bacterial blight, and mosaic.

Bean rust (Uromyces phaseoli typica) was no more damaging to pole beans than in most seasons. In fact, it was less conspicuous than in some past years. Bush beans showed the usual trace of rust infection, compared with the very unusual outbreak on snap beans and shell beans in 1936.

LETTUCE: Gray mold rot (Botrytis cinerea), drop (Sclerotinia sp.), and the non-parasitic tip-burn diseases were more damaging to the main, spring crop in all lettuce-growing sections than in the average season,--- another evidence of the effect of the early-season wet weather and succulent growth. Bottom rot (Rhizoctonia solani), on the other hand, caused about the usual amount of injury, less than any one of the other diseases mentioned.

CARROTS: Both early and late plantings of carrots underwent more damage this year from leaf blights (Cercospora carotae and Macrosporium carotae) than in any season since I have been making observations in the State. In those sections where the diseases rarely develop, losses were light to moderate, but generally severe on farms in the extreme eastern, southeastern, and Connecticut Valley parts of the State where crop rotation was not observed. Both the blights were present generally through July, but macrosporium predominated by far during August and September. A grower in Essex County succeeded in checking the damage in a large field of late carrots with two applications of Bordeaux mixture early in September.

PEPPER: This crop, which generally in this State is exempt from appreciable losses due to parasitic diseases, showed somewhat more injury from the bacterial spot (Bacterium vesicatorium) disease than in most years. This disease, however, was confined primarily to the foliage. It was not observed on tomatoes, even though vines of the two crops touched each other. Blossom-end rot (non-parasitic) was distinctly injurious in many gardens and fields, causing about the usual amount of loss.

ONIONS: Blast (non-parasitic) and downy mildew (Peronospora destructor) were the outstanding diseases of onions in the State this year. Downy mildew first appeared as isolated spots in set fields around the middle of June. Those spots enlarged rapidly and the disease spread from them to other parts of the same field and to nearby set and seeded fields. The extremely hot period of July 6-11 (89°, 90°, 96°, 95°, 93°, 90° F, respectively) caused a temporary check in its spread. Blast (tip-burn or leaf-scorch) began to appear as small dead, white spots in the leaves and as leaf tip die-back during late June. During and following the hot period of July, it developed rapidly in most onion fields and caused premature death of the tops. Downy mildew resumed its development around July 15 and was present until the fields died from the effect of blast. It is conservatively estimated that the reduction in yield of the set crop was around 25 percent; that of the seed crop, at least 50 percent, i.e., 10 percent from each of thrips and downy mildew and 30 percent from blast. Blast or tip-burn is thought to be caused by hot weather and abnormal transpiration in crops with succulent tops and scanty roots. The weather of May and June certainly was the kind to encourage that type of growth not only in onions but in other crops as well.

Storage losses. A survey of onion storages in Hadley, Sunderland, and Hatfield on October 7 revealed heavy additional losses to both set and seed onions from bacterial and mold infections that started apparently after harvest in the succulent, immature, poorly cured necks. Losses were most pronounced where the crop had been stored either in bags or crates without adequate ventilation between the containers and in the storage rooms. Heavy losses were headed off by some growers by promptly running the onions over the rack, sorting out decayed bulbs, and re-storing the crop in smaller containers with wider spacing,--just as soon as there were indications of heat and decay in the harvested crops.

Both set and seed onions were found occasionally to be keeping well with minimum decay both in bags and in stacked crates in the field. The crates were well spaced and the stacks covered, while the bags had been turned end-for-end every four or five days. However, a majority of the crops of either set or seed onions were distinctly immature, the bulbs lacking the firmness and the well cured, dry neck end, and it is suspected of course that all such crops, even those showing the least amount of decayed bulbs at that time, will not keep well during the remainder of the normal storage period.

Hence, the full effect of blast and downy mildew on the onion crop as resulting from the premature death of the tops, can not be determined until the end of the storage season.

Pink-root (Phoma terrestris) of onions and the subsequent development of the fusarium bulb rot in the field, were little or no more conspicuous than usual this year. In fact, it seemed as if the roots, though scanty and few in many instances, were uncommonly clean and white. Fusarium bulb-rot in storage was not very noticeable on October 7, and botrytis neck-rot had not yet begun to show up. One crop of seed-sets (closely grown, undersized bulbs from seed, to be used for the set crop next year) showed a great deal of a fusarium dry rot.

Onion smut (Urocystis cepulae) not only was perhaps more prevalent on seed onions early in the season than usual, but it continued later in the season than I have ever observed it to operate before in the seeded fields particularly in the thickly seeded seed-set patches where it was still very active when the plants matured. (Massachusetts State College, Oct. 18).

SOME REPORTS ON COTTON DISEASES

DISEASES OF ACALA COTTON IN ARIZONA: Wilt (Verticillium albo-atrum) is present in all cotton districts. Field observations strongly support the seed-borne nature of the disease: Plants attacked are usually scattered, one or two in a place; new land in crop for the first time is affected; the disease appeared simultaneously in valleys which are physiographically isolated and the wilt is limited to cotton.

Rust (Aecidium gossypii = Puccinia schedonnardi). At Sahuarita, south of Tucson, 50 to 85 percent infection, based upon number of plants, was observed in a few fields. There was a trace at Marana, also, northwest of Tucson. Late seasonal showers were favorable to infection.

Angular leaf spot (Bacterium malvacearum). A trace to very heavy (85 to 90 percent) infection of the bolls was observed in some fields at Eloy. The disease did not occur in fields grown from sulfuric acid delinted seed. (J. G. Brown, Arizona Agricultural Experiment Station).

ROOT DISEASES IN TEXAS: There was an increase in root diseases of cotton in Cherokee County this year. Fusarium vasinfectum and Phymatotrichum omnivorum each caused a loss of nearly five percent of the yield of cotton. (P. A. Young, Texas Agricultural Experiment Station, Tomato Disease Laboratory, Jacksonville, Oct. 22).

DISEASES OF HERBACEOUS ORNAMENTALS IN NEW YORK IN 1937

P. P. Pirone

IRIS TRICUSPIDATA
Guignardia bidwellii (Ell.) Viala & Ravaz, leaf spot.

BEGONIA sp.
Bacterium sp., leaf spot. Long Island.
Heterodera marioni (Cornu) Goodey, root knot. Long Island.
Rhizoctonia solani Kühn, stem canker.

ALTHEA ROSEA
Puccinia malvacearum C. G. Bertero, rust. More generally widespread and destructive than for many years.

ANTIRRHINUM MAJUS
Puccinia antirrhini Diet. & Holw., rust.

CALLISTEPHUS CHINENSIS
Coleosporium solidaginis (Schw.) Thüm., rust.
Fusarium conglutinans callistephi Beach, wilt.
Yellows (virus).

CHRYSANTHEMUM sp.
Cylindrosporium chrysanthemi Ell. & Dearn., leaf-spot.
Erysiphe cichoracearum DC., powdery mildew.
Puccinia chrysanthemi Roze, rust.

CRASSULA PORTULACEA
Pythium sp., stem rot.

DELPHINIUM sp.

Bacterium delphinii (EFS.) Bryan, black spot.
Botrytis sp., gray mold.
Sclerotium delphinii Welch, crown rot.

DIANTHUS sp.

The following diseases were prevalent on greenhouse-grown horticultural varieties of *D. caryophyllus*:
Alternaria dianthi Stev. & Hall, branch rot.
Corticium vagum Berk. & Curt., stem rot.
Fusarium sp., wilt and stem rot.
Uromyces caryophyllinus (Schrank) Wint., rust.

On *D. latifolius* and *D. chinensis* at Ithaca.
Septoria dianthi Desm., leaf spot and blight. Circular light brown spots produced on *D. latifolius* and complete blighting of leaves on *D. chinensis*.

DICENTRA SPECTABILIS
Sclerotium delphinii Welch, crown rot.

DIGITALIS PURPUREA
Sclerotinia sclerotiorum (Lib.) Mass., stem rot.

FUNKIA SUBCORDATA
Sclerotium delphinii Welch, crown rot.

GARDENIA sp.
Phomopsis sp., stem canker.
Heterodera marioni (Cornu) Goodey, root knot.

IRIS sp.
Bacillus carotovorus L. R. Jones, soft rot.
Didymellina iridis (Desm.) Hoehn., leaf-spot.

KERRIA JAPONICA
Coccomyces kerriae V. B. Stewart, twig and leaf blight. Produced complete defoliation in one Long Island planting.

LATHYRUS ODORATUS
Cladosporium album Dowson, leaf mold. Mostly in greenhouses.
Corticium vagum Berk. & Curt., especially severe in greenhouses where excessive amounts of manure were used.
Mosaic (virus) severe in several outdoor plantings on Long Island.

LIATRIS sp.
Sclerotinia sclerotiorum (Lib.) Mass., stem rot.

LILIUM sp.
Botrytis cinerea Auct., blight.
Mosaic (virus).

PAEONIA sp.
Botrytis paeoniae Oud., blight.
Cladosporium paeoniae Pass., leaf-blotch.
Sclerotinia sclerotiorum (Lib.) Mass., stem rot.
Rhizoctonia solani Kühn, stem rot.
Mosaic (virus).

PELARGONIUM
Botrytis cinerea Auct., blight.
Oedema (Physiological disturbance).

PENTSTEMON sp.
Puccinia andropogonis Schw., rust.

PETUNIA sp.
Rhizoctonia solani Kühn, stem rot.
Mosaic (virus).

PHLOX
Sphaerotheca humuli (DC.) Burr., powdery mildew.
Leaf blight (cause undetermined), severe despite the very rainy season.

TULIPA
Botrytis tulipae (Lib.) E. F. Hopkins., blight.
Mosaic (virus).
(Cornell University).

BATTLE ON DUTCH ELM DISEASE AIDED BY EXTRA LABOR FORCES

(From U. S. Department of Agriculture Press Release, Nov. 1).

Federal forces made gains in the fight on Dutch elm disease as a result of well-timed and vigorous activities during the past summer.

In thus summarizing the season's activities for 1937, Lee A. Strong, Chief of the Bureau of Entomology and Plant Quarantine, lays special emphasis on the part played by WPA labor. "Without this help," he says, "we could not have accomplished what we did this summer."

The number of diseased trees found this year dropped 25 percent below last year's total in the territory where the infection is known to be a serious epidemic--an area extending 50 miles radially from New York City into Connecticut, New York State, and New Jersey.

The disease has spread to no new territory this year, nor has it recurred in Baltimore, Brunswick, and Cumberland, Maryland, Norfolk, Virginia, or Cleveland and Cincinnati, Ohio, where 78 infected trees had been found in the past. Apparently, Mr. Strong says, these 78 diseased trees were discovered and removed in time to keep them from becoming sources of new infection.

The only new centers of infection brought to light this season were one diseased elm at Athens, Ohio, and five diseased elms at Wileys Ford, West Virginia. These trees have been destroyed. New infections along the boundaries of the major zone were limited to single trees in Alexandria Township, Hunterdon County, New Jersey; Cornwall Township, Orange County, New York; and the town of Redding, Fairfield County, Connecticut.

Dutch elm disease scouts found 5,497 cases of the infection this year, compared with 7,321 cases last year. The number of cases in New Jersey dropped from 5,504 in 1936 to 4,215; and in New York from 1,699 to 1,136. There was a slight increase in the number of diseased elms in Connecticut--111 this year and 96 last year.

With 3,100 scouts in the field from May 29 to October 1, it was possible to complete three scoutings in the major area of infection and two scoutings in the 10-mile wide protective zone around it. Closer scouting in Indianapolis, Indiana, where the disease has been known to be present since 1934, resulted in an increase in disease findings this year. Laboratory cultures of twig specimens from suspected trees proved the presence of the infection in 31 trees. All of these have been removed.

As the campaign advances, scouting becomes increasingly difficult, Mr. Strong says. The scouts must look more closely for evidences of the disease and they must cover more inaccessible places. This year scouts were under orders to sample all elms showing any symptoms of abnormality. This meant climbing more trees than ever before. It reduced the chance of missing any infected tree, however. Twig samples from more than 75,000 elms with yellowed or wilting leaves and signs of brown streaks beneath the bark were collected and sent to the laboratory for the culturing that proves the presence, or absence, of the disease.

An autogiro observer scouted 11,000 miles of railroad rights of way over which the imported logs that brought the disease to this country traveled inland to be made into veneer for cabinet makers. A follow-up ground crew visited points marked on his map by the aerial scout. Three other autogiros carried scouts slowly, close above the tree tops, over inaccessible areas in and around the major zone.

Winter eradication activities in the major zone will center on the removal of dead and devitalized elms, not necessarily infected with Dutch elm disease, but a good breeding place for the elm bark beetles that spread

the disease fungus from infected to healthy trees. All elms will be removed from some areas of heavy infection and from certain swamp or mountain areas where summer scouting is particularly difficult and dangerous. This wholesale removal of elms will make it impossible for the fungus to persist and for insect carriers of it to survive in areas where all diseased trees have been destroyed.

BRIEF REPORTS ON PLANT DISEASES

STEM RUST IN NORTH DAKOTA: Stem rust (Puccinia graminis) injury to spring wheat in eastern North Dakota was in certain cases as severe as in 1935, but escapes from such injury were not uncommon because of the cooler temperatures in late July and August this season. Particularly surprising was the good quality of the durum crop, notably Mindum, which on many farms weighed well above 60 pounds although the yields generally were not high. Evidently with relatively cool weather and occasional showers, this variety was able to mature producing good grain despite stem rust readings of 40 to 60 percent. In the durum territory, test weights on Mindum were generally 2 to 5 pounds heavier than on comparably sown Thatcher, and 5 to 10 pounds heavier than on comparable Ceres and Marquis. (G. S. Smith, Cereal Courier 29:139. Oct. 10).

SWEET CORN DISEASES IN MASSACHUSETTS: Bacterial wilt, or Stewart's disease (Aplanobacter stewarti) appears to have receded entirely to its normal, unimportant status. Only mere traces of infections were observed and they occurred in some of the more susceptible varieties. Smut (Ustilago zeae), on the other hand, appeared to have profited enormously from the wet weather that prevailed at the time of seed germination and early plant growth, particularly in the earlier plantings. In no previous year was there such early and extensive ear infections observed as this season. Yet, the percentages of plants infected, as well as the severity of infection on individual plants, varied greatly on different farms. This of course is to be expected since the most important source of the disease is land on which corn was grown the preceding year.

Rust (Puccinia sorghi) developed profusely, as in most seasons, on sweet corn during the latter half of August and in September. The actual amount of damage to even the late plantings, however, is believed to be rather small. (O. C. Boyd, Oct. 18).

POTATO LATE BLIGHT IN MAINE: Potato inspectors have reported that there is a considerable amount of late blight tuber rot in potatoes being packed for shipment from Aroostook County. I do not know how serious the trouble is this season. I doubt that it will be as prevalent as in 1936. I visited quite a few potato bins during the winter of 1936 and according to the statement made by the shippers, from 7 to 10 percent of the crop was being discarded because of decay caused by Phytophthora infestans. Tuber

rot is very general when we have late frosts and the potato vines remain green until late in the season. Some growers are apt to harvest the crop while the crop is green and rot develops because of contamination by the infected foliage during the harvesting process. (Reiner Bonde, Maine Agricultural Experiment Station, Oct. 30).

BLIGHT ON APPLES IN MAINE; Blight (Bacillus amylovorus) is quite rare in Maine and I have never heard of it being present in Aroostook County. This year it appeared to be rather general. The season of 1936 was very warm and that fact might account for the disease showing up. (Reiner Bonde, Maine Agricultural Experiment Station, Oct. 30).

PEACH YELLOWS SITUATION IN MASSACHUSETTS: In Worcester County, several reports to Fred Cole indicated that at least some of the peach growers felt more concerned than usual about losses from peach yellows. When we visited one farm in that county, we obtained strong evidence that certain wild cherries were acting as hosts to this virus disease, and also serving as sources of the disease for young orchards planted near them. Diseased cherries, including the choke cherry, manifested the same type of yellowed, dwarfed, bunched leaf-symptom as is common in diseased peach trees. This is the first record of wild cherries being a probable carrier of this peach disease. Formerly, the additional hosts for peach yellows were thought to be nectarine, almond, apricot, Japanese plum, and wild plums. (O. C. Boyd, Massachusetts State College, Oct. 8).

RUST ON MARIGOLD IN CALIFORNIA: A rust on African marigold, Tagetes erecta, was found by J. B. Kendrick and M. W. Gardner on a large seed ranch at San Juan, California, September 10. The specimen was referred to Dr. G. B. Cummins of Purdue University who reports that the rust is "sufficiently close to Coleosporium madiae Cke. to pass under that name". There is apparently no previous record of a Coleosporium on Tagetes.

ROOT ROT OF WASHINGTON PALM IN ARIZONA: A root rot of the Washington palm, Washingtonia gracilis var. filifera, was first observed in 1935 in the Salt River Valley, on palms ten to fifteen feet high. The disease traveled along two rows, killing the palms. The leaves die from below upward, necrosis finally reaching the terminal bud. Roots are brown and water-soaked. The palms attacked have usually been weakened by improper cultural conditions. This year the disease has killed two palms in Tucson, one twenty feet high. The cause of the disease is unknown, but cultures of the roots give a pure growth of Fusarium. (J. G. Brown, Arizona Agricultural Experiment Station).

A CORRECTION

In the note by Anna E. Jenkins, in the September 15 issue, (Distribution of rose anthracnose in California P.D.R. 21:316-317): on page 317, lines 1, 2, change hybrid perpetual to tea; line 5, change perpetual to tea.

REQUEST FOR BACK NUMBERS OF THE PLANT DISEASE REPORTER AND SUPPLEMENTS

The Survey would be grateful for the return of any of the numbers of the REPORTER or its SUPPLEMENTS listed below.

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Vol. 10, Nos. 6, 9, 10.
Vol. 11, No. 8.
Vol. 12, all numbers.
Vol. 13, No. 1
Vol. 15, Nos. 1, 3, 14.
Vol. 16, all numbers.

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